

REMARKS

This Application has been carefully reviewed in light of the Office Action mailed May 17, 2005 (the "Office Action"). At the time of the Office Action, Claims 1-22 were pending in the Application. The Examiner rejected Claims 1-3, 5-13, and 15-22 and objected to Claims 4 and 14. Claims 8, 12, and 22 have been amended. Applicants respectfully request reconsideration and favorable action in this case.

Allowable Subject Matter

Applicants note with appreciation the Examiner's indication that Claims 4 and 14 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, Applicants respectfully submit Claims 1 and 12, the base claims from which Claims 4 and 14 depend, are allowable, and that Claims 4 and 14 are, therefore, also allowable in their present forms.

Section 112 Rejections

Claims 1, 3, 8, 13, and 22 were objected to under 35 U.S.C. § 112, ¶ 2, due to various informalities. Claims 1, 3, 13, and 22 were objected to due to the use of the phrase "substantially optimized." During a phone conversation on July 18, 2005, the Examiner indicated that she would withdraw these objections. Applicants note with appreciation the Examiner's withdrawal of these objections.

Claim 8 was objected to due to the typographical error "with the a remaining frequency." Claim 8 has been amended to correct this error. Applicants respectfully request that the objection to Claim 8 be withdrawn.

Section 103 Rejections

Claims 1, 2, and 5-7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication No. 2003/0060205 to Shapira ("*Shapira*") and further in view of U.S. Patent No. 6,400,317 issued to Rouphael et al. ("*Rouphael*"). Applicants respectfully traverse these rejections for the reasons stated below.

In order to establish a *prima facie* case of obviousness of a claimed invention, all claim limitations must be taught or proposed by the prior art. *In re Royka*, 490 F.2d 981

(CCPA 1974). Applicants respectfully submit that each and every element of Claims 1, 2, and 5-7 are not found within the references cited by the Examiner.

Claim 1 recites:

A method for using a pilot signal to enhance a data signal associated with the pilot signal, comprising:

receiving a plurality of data signals and a plurality of pilot signals on a plurality of antenna elements, each data signal from the plurality of data signals being uniquely associated with a pilot signal from the plurality of pilot signals, each pilot signal from the plurality of pilot signals having a first characteristic and a second characteristic;

identifying a first pilot signal from the plurality of pilot signals based on the first characteristic of the first pilot signal; and

adjusting a first weight value associated with each antenna element from the plurality of antenna elements so that the second characteristic of the first pilot signal is substantially optimized with respect to the second characteristic of the remaining pilot signals from the plurality of pilot signals.

Applicants respectfully submit that the *Shapira-Rouphael* combination proposed by the Examiner fails to teach, suggest, or disclose each element of Claim 1. For example, *Shapira-Rouphael* fails to teach, suggest, or disclose “adjusting a first weight value associated with each antenna element . . . so that the second characteristic of the first pilot signal is substantially optimized with respect to the second characteristic of the remaining pilot signals.” Instead, the sections of *Shapira* the Examiner cites as disclosing this limitation merely describe “[a] conventional ‘smart antenna’ [that] forms a spatial matched filter for each code link by detecting the desired signal and adjusting the weights of all antenna elements so as to minimize the interference.” p. 3, ¶ 52. In fact, *Shapira* teaches away from “adjusting the weights of all antenna elements so as to minimize interference,” saying such a process is “intrusive.” p. 3, ¶ 52. In its place, *Shapira* suggests a method for making a “smart antenna” non-intrusive, given knowledge of the active subscribers’ positions. p. 4, ¶ 61. This method, however, does not include “adjusting a first weight value associated with each antenna element . . . so that the second characteristic of the first pilot signal is substantially optimized with respect to the second characteristic of the remaining pilot signals.” For at least these reasons, the rejection of Claim 1 is improper. Applicants respectfully request that the rejection of Claim 1 be withdrawn.

Claims 2 and 5-7 depend from independent Claim 1. Therefore, Applicants respectfully submit that Claims 2 and 5-7 are also allowable over the *Shapira-Rouphael* combination proposed by the Examiner, for example, for the same reasons discussed above with regard to Claim 1. Applicants respectfully request that the rejections of these claims also be withdrawn.

Claims 8-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Shapira* and *Rouphael*, and further in view of U.S. Publication No. 2005/0083875 to Sato ("*Sato*"). Applicants respectfully traverse these rejections for the reasons stated below.

As discussed above in regard to Claim 1, from which claims 8-11 depend, the *Shapira-Rouphael* combination proposed by the Examiner fails to teach, suggest or disclose "adjusting a first weight value associated with each antenna element . . . so that the second characteristic of the first pilot signal is substantially optimized with respect to the second characteristic of the remaining pilot signals" as required by each of Claims 8-11. For at least this reason, Applicants submit that the rejections of Claims 8-11 are improper and respectfully request that the rejections be withdrawn.

Claims 12 and 13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Shapira*, and further in view of *Rouphael* and U.S. Patent No. 6,621,851 issued to Agee et al. ("*Agee*"). Claims 12 and 13 were also rejected under 35 U.S.C. §103(a) as being unpatentable over *Shapira*, *Rouphael*, *Agee* and further in view of U.S. Publication No. 2004/0012387 issued to Shattil ("*Shattil*"). Applicants respectfully traverse these rejections for the reasons stated below.

Claim 12 recites:

An apparatus comprising;
a plurality of antenna elements configured to receive a plurality of data signals and a plurality of pilot signals, each data signal from the plurality of data signals being uniquely associated with a pilot signal from the plurality of pilot signals, each pilot signal from the plurality of pilot signals having a first characteristic and a second characteristic;
a plurality of circuits each coupled to an antenna element from the plurality antenna elements, each circuit having:
a filter configured to receive the plurality of data signals and the plurality of pilot signals and to produce a first signal component and a second signal component;

a first weight-application module coupled to the filter, the first weight-application module configured to receive the first signal component and to apply a first weight value to the first signal component; and

a second weight-application module coupled to the filter, the second weight-application module configured to receive the second signal component and to apply a second weight value to the second signal component;

a processor coupled to the plurality of circuits, the processor configured to determine a first pilot signal from the plurality of pilot signals based on the first characteristic of the first pilot signal; and

a best solution selector coupled to the first weight-application module and the second weight-application module of each circuit from the plurality of circuits, the best solution selector configured to select an iteration value for the first weight value and the second weight value based on the second characteristic of the pilot signal.

Applicants respectfully submit that the combinations proposed by the Examiner fails to teach, suggest, or disclose each element of Claim 12. For example, *Shapira-Rouphael-Agee* fails to teach, suggest, or disclose a “a plurality of circuits each coupled to an antenna element, each circuit having: a filter configured . . . to produce a first signal component and a second signal component; a first weight-application module . . . configured to receive the first signal component and to apply a first weight value to the first signal component; and a second weight module . . . configured to receive the second signal component and to apply a second weight value to the second signal component.” The references cited by the Examiner also fail to teach, suggest, or disclose “a best solution selector . . . configured to select an iteration value for the first weight value and the second weight value based on the second characteristic of the pilot signal.” In fact, the Examiner fails to point to any hardware or apparatus in the cited references that is supposed equivalent to the elements listed above. For at least these reasons, the rejection of Claim 12 is improper, and Applicants respectfully request that the rejection of Claim 12 be withdrawn.

Claim 13 depends from independent Claim 12. Applicants respectfully submit that Claim 13 is also allowable over the combination proposed by the Examiner, for example, for the same reasons discussed above with regard to Claim 12. Therefore, Applicants respectfully request that the rejection of Claim 13 also be withdrawn.

Claims 15-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Shapira*, and further in view of *Rouphael* and *Agee*. Claims 18-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Shapira*, *Rouphael*, *Agee*, and *Sato*. Applicants respectfully traverse these rejections for the reasons stated below.

As discussed above in regard to Claim 12, from which claims 15-21 depend, the references cited by the Examiner fail to teach, suggest or disclose “a plurality of circuits each coupled to an antenna element, each circuit having: a filter configured . . . to produce a first signal component and a second signal component; a first weight-application module . . . configured to receive the first signal component and to apply a first weight value to the first signal component; and a second weight module . . . configured to receive the second signal component and to apply a second weight value to the second signal component” as required by each of Claims 15-21. The references cited by the Examiner also fail to teach, suggest, or disclose “a best solution selector . . . configured to select an iteration value for the first weight value and the second weight value based on the second characteristic of the pilot signal.” For at least these reasons, Applicants submit that the rejections of Claims 15-21 are improper and respectfully request that the rejections be withdrawn.

Claims 22 was rejected under 35 U.S.C. § 103(a) as being unpatentable over *Shapira* and further in view of *Rouphael*. Applicants respectfully traverse these rejections for the reasons stated below.

Claim 22 recites:

A method for using a pilot signal in a communication receiver having a plurality of antenna elements, comprising:
receiving a plurality of data signals and a plurality of pilot signals;
identifying a first pilot signal from the plurality of pilot signals based on a first characteristic of the first pilot signal from the plurality of pilot signals; and
adjusting a plurality of weight values associated with the plurality of antenna elements so that a second characteristic of the first pilot signal is substantially optimized with respect to the second characteristic of the remaining pilot signals from the plurality of pilot signals,
whereby a first data signal from the plurality of data signals and being uniquely associated with the first pilot signal is substantially optimized by the adjusting of the plurality of weight values associated with the plurality of antenna elements.

Applicants respectfully submit that the *Shapira-Rouphael* combination proposed by the Examiner fails to teach, suggest, or disclose each element of Claim 22. For example, *Shapira-Rouphael* fails to teach, suggest, or disclose “adjusting a plurality of weight values associated with the plurality of antenna elements so that a second characteristic of the first pilot signal is substantially optimized with respect to the second characteristic of the remaining pilot signals.” As discussed above in regard to Claim 1, the *Shapira-Rouphael* combination proposed by the Examiner fails to teach, suggest, or disclose this element, and in fact teaches away from it. For at least this reason, the rejection of Claim 22 is improper. Applicants respectfully request that the rejection of Claim 22 be withdrawn.

CONCLUSION

Applicants respectfully submit that this Application is in condition for allowance. For at least the foregoing reasons, Applicants respectfully request full allowance of all pending claims. Although no fees are believed due, the Commissioner is hereby authorized to charge any fee or credit any overpayment to Deposit Account No. 02-0384 of Baker Botts, L.L.P. If the Examiner feels that a telephone conference would advance prosecution of the Application in any manner, the undersigned attorney for Applicants stands ready to conduct such a conference at the convenience of the Examiner.

Respectfully submitted,

BAKER BOTTS L.L.P.
Attorneys for Applicants



Keiko Ichiye
Reg. No. 45,460
Phone: (214) 953-6494

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CORRESPONDENCE ADDRESS:

Customer Number: **05073**
Attorney Docket No.: 074078.0107